

IN THE CLAIMS:

Amendments to the Claims

Please amend claims 1, 3 and 7-14 as shown below.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A magnetic head having a magnetoresistive film comprising an anti-ferromagnetic layer, a ferromagnetic pinned layer, a non-magnetic intermediate layer, a soft magnetic free layer, a non-magnetic ~~and oxidized~~ conductive film oxidized stopper layer, and an oxide protective layer of metal selected from Ta, Nb, Ti, Hf, W or an alloy thereof laminated in this order on a substrate.

Claim 2 (canceled)

3. (currently amended) A magnetic head as defined in claim 1, wherein the thickness of the metal oxide protective layer is 1.0 nm or less.

4. (previously presented) A magnetic head as defined in claim 1, wherein an intermediate layer coupling field showing a magnitude of ferromagnetic coupling between the ferromagnetic pinned layer and the soft magnetic free layer is substantially zero.

Claim 5 (canceled)

6. (previously presented) A magnetic head as defined in claim 3, wherein an intermediate layer coupling field showing a magnitude of ferromagnetic coupling

between the ferromagnetic pinned layer and the soft magnetic free layer is substantially zero.

7. (currently amended) A magnetic head as defined in claim 4, wherein the thickness of the metal oxide protective layer is 1.0 nm or less.

8. (currently amended) A magnetic recording apparatus including a magnetic recording medium for recording information, a magnetic head having a magnetoresistive film comprising an anti-ferromagnetic layer, a ferromagnetic pinned layer, a non-magnetic intermediate layer, a soft magnetic free layer, a non-magnetic ~~and oxidized conductive film~~ oxidized stopper layer, and an oxide protective layer of metal selected from Ta, Nb, Ti, Hf, W or an alloy thereof laminated in this order on a substrate, a head slider for holding the magnetic head, an actuator for guiding the head slider to a predetermined recording position on the recording medium, a spindle motor rotating the recording medium and a signal processing system for processing information read out of the magnetic recording medium.

9. (currently amended) A magnetic head as defined in claim 1, wherein the ~~non-magnetic and oxidized conductive film~~ is a non-magnetic and conductive oxidized stopper layer which substantially prevents at least one of diffusion of oxygen from the metal oxide protective layer ~~which is an oxide protective layer~~ and propagation of stresses caused by oxides with respect to the soft magnetic free layer and degradation of a soft magnetic characteristic of the soft magnetic free layer.

10. (currently amended) A magnetic recording apparatus as defined in claim 8, wherein the ~~non-magnetic and oxidized conductive film~~ is a non-magnetic conductive oxidized stopper layer which substantially prevents at least one of

diffusion of oxygen from the metal oxide protective layer ~~which is an oxide protective layer~~ and propagation of stresses caused by oxides with respect to the soft magnetic free layer and degradation of a soft magnetic characteristic of the soft magnetic free layer.

11. (currently amended) A magnetic head as defined in claim 1, wherein the non-magnetic and ~~oxidized-conductive film~~ oxidized stopper layer has a thickness so that an intermediate layer coupling field showing a magnitude of ferromagnetic coupling between the ferromagnetic pinned layer and the soft magnetic free layer is substantially zero.

12. (currently amended) A magnetic head as defined in claim 11, wherein the thickness of the non-magnetic and ~~oxidized-conductive film~~ oxidized stopper layer enables a change of resistance (ΔR) to be maximized.

13. (currently amended) A magnetic recording apparatus as defined in claim 8, wherein the non-magnetic and ~~oxidized-conductive film~~ oxidized stopper layer has a thickness so that an intermediate layer coupling field showing a magnitude of ferromagnetic coupling between the ferromagnetic pinned layer and the soft magnetic free layer is substantially zero.

14. (currently amended) A magnetic recording apparatus as defined in claim 13, wherein the thickness of the non-magnetic and ~~oxidized-conductive film~~ oxidized stopper layer enables a change of resistance (ΔR) to be maximized.